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ABSTRACT

Cooperative book acquisition plans and improved systems of interlibrary lending are intended to eliminate duplication of library holdings. In order to calculate possible savings, an investigation of how much duplication exists in the libraries on the various campuses of the University of California was made. Estimates were developed for the extent of the overlap of the monograph holdings of the UCLA collection with those of the other southern University of California campuses, and of the monograph holdings of the Berkeley collection with those of the other northern campuses. The historic usage rates of the overlapped portions of the collections also were estimated. The methodology by which these estimates were obtained is quite general and with appropriate modifications should be applicable in investigations of a similar nature in other library systems. (Author/PF)

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The Duplication of Monograph Holdings in the University of California Library System

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ABSTRACT

The rising costs of books and book processing have caused many library policymakers to consider more carefully the advantages of interlibrary cooperation of various kinds, including cooperative book acquisition plans and improved systems of interlibrary lending. A key question that has to be answered before sensible decisions can be made on these matters is: How much duplication among library collections is there that such schemes might potentially eliminate? This paper reports the results of an investigation of this question for the libraries on the various campuses of the University of California. Estimates are given for the extent of the overlap of the monograph holdings of the UCLA collection with those of the other southern University of California campuses, and of the monograph holdings of the Berkeley collection with those of the other northern campuses. Estimates of the historic usage rates of the overlapped portions of the collection are also given. The methodology by which these estimates were obtained is quite general and with appropriate modifications should be applicable in investigations of a similar nature in other library systems.

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I. INTRODUCTION

In an attempt to find economies to offset the rising costs of acquiring, processing, and storing books, library administrators have of late been giving more serious consideration to the possibility of cooperative schemes of various sorts which would allow them to share these costs with other libraries. Prominent among the cost-sharing schemes are such well-known ideas as cooperative acquisition plans whereby only, say, one copy of a book need be purchased by a group of libraries, with accompanying plans for improved interlibrary lending under which all members of the group would have easy access to that one copy. But whether substantial economies could be realized under such arrangements depends at least partly upon the extent of the duplication in holdings that could thereby be avoided. Is there very much duplication among the collections of large research libraries? And if there is, how heavily used are the duplicated documents at their respective locations? Unless these facts are known, it is difficult to make rational policy decisions about whether cooperative systems for avoiding duplication are worthwhile.

The purpose of this paper is to report the results of an investigation into the extent and nature of the duplication of monograph holdings among the various University of California libraries. Each of the nine campuses of the University of California has its own local library system, and the extent to which the monograph collection of any one of these local systems overlaps the collections of any other has heretofore been a matter of conjecture. The aim of the investigation was to obtain rough first estimates of the extent of this duplication, and in addition some preliminary idea of how heavily the duplicated portions of the collections are used.

The scope of the investigation was restricted to books or monographs as opposed to serials. This restriction was made partly for research convenience, and partly because of the existence of plans for an independent investigation of duplication of serial holdings at some future time. More importantly, the investigation was limited to fact-finding as opposed to policy-making. No attempt was made to draw any conclusions from the data about the advisability of interlibrary cooperation or the form such cooperation might take, this being a difficult problem which lay beyond the immediate mission of the research group. The significance of our findings for interlibrary cooperation will be the topic of a later paper.

Our investigation may be compared in its general intent with similar studies of collection overlap in six New England state university libraries,[1] in five Washington, D.C. university libraries,[2] in six New South Wales libraries,[3,4] and in the University of London libraries.[5] The present study differs from these in methodology, however, combining an investigation of collection overlap with a followup study of usage rates of the overlapped materials. It is hoped that, in addition to whatever intrinsic interest the findings themselves may have, the methodology may be of interest to those who will have future occasion to make the same kind of investigation elsewhere.

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II. GENERAL METHODOLOGY

Geographically the campuses of the University of California fall into two distinct clusters, one in the north-central part of the state and the other in the southern part. The northern cluster consists of Berkeley, the largest of the nine campuses, and three other smaller campuses lying respectively north, west, and south of Berkeley at Davis, San Francisco, and Santa Cruz. The southern cluster consists of the Los Angeles campus, the second-largest of the nine, surrounded by smaller campuses at Santa Barbara, San Diego, Riverside, and Irvine. One of the implications of these circumstances for possible future interlibrary cooperation is that it might be reasonable to consider making the library at Berkeley the hub member of a northern library constellation and the U.C.L.A. library the hub of a southern constellation, with possible further interaction taking place between the Berkeley and U.C.L.A. libraries themselves. Other future arrangements are, of course possible too, but almost any cooperative venture that might reasonably be considered is apt to be characterized at least by substantial interaction between Berkeley and each of the other northern campuses, and between Los Angeles and each of the other southern campuses.

These geographical facts suggested a research procedure which would provide information about the holdings duplicated between the following pairs of campuses: Berkeley-Davis, Berkeley-Santa Cruz, Berkeley-San Francisco, Los Angeles-Santa Barbara, Los Angeles-San Diego, Los Angeles-Riverside, Los Angeles-Irvine, and Los Angeles-Berkeley. A basic research strategy was therefore settled upon which consisted of (A) drawing a random sample of monographs from the Berkeley collection and seeing what proportion of these were to be found also at Davis, Santa Cruz, and San Francisco; (B) drawing a random sample of monographs from the Los Angeles collection and finding out the proportion of these that were also at Santa Barbara, San Diego, etc.; and (C) finding out what proportion of the Los Angeles sample were also in the Berkeley collection. From these sample data it was possible to deduce (to an approximation) the amount of monograph material held in common between any two of the campus pairs of interest, expressed either as an absolute number of monograph titles held in common or as a proportion of total collection size. The compilation and statistical analysis of these overalp figures completed the first phase of the project.

The aim of the second phase was to gain some idea of how heavily the duplicate holdings are used. To this end historical circulation data were obtained for all monographs in the sample which step (A) revealed to be held in common between Berkeley and another northern campus, or which step (B) showed to be shared between Los Angeles and another southern campus. The circulation data were obtained both for 'hub' campuses and 'outlying' campuses, e.g. for books held by both Davis and Berkeley the circulation history at Davis as well as the circulation history at Berkeley was obtained. Although the circulation data were incomplete in certain respects they were sufficient to make rough frequency counts of the number of times each duplicated book had circulated during

the five-year period of 1969-73. It was also possible to make a rough determination for each campus of the proportions of the monographs that were classifiable as 'high usage', 'low usage', and 'no usage' books according to an algorithm designed by the State Auditor for that purpose. Since circulation history does not take in-house usage into account, the number of times a book has circulated underestimates to some unknown extent the number of times it has really been used. Thus the circulation figures are really only lower bounds on the actual usages. Nevertheless there is evidence to suggest that circulated usage is at least roughly proportional to true usage and in this sense can be used as a comparative indicator of it.

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III. DEFINITIONS OF THE MONOGRAPH COLLECTIONS SURVEYED

The general research strategy called for the drawing of a random sample of the monographs in the Berkeley collection and the comparison of this sample against the monograph holdings of each of the other northern campuses, the whole operation then to be repeated in the south. But before this strategy could be implemented it was necessary to define carefully just what was to be meant by the 'Berkeley collection', the 'Los Angeles collection', and so forth. The problem is not trivial; on the Berkeley campus, for example, there are some twenty-six different local subcollections not counting a group of miscellaneous institute and departmental libraries. Which of these subcollections should the Berkeley sample be drawn from?

In view of the fact that the project findings were to be used partly as a basis for administrative decisions about cooperative acquisition and interlibrary loan policies, it seemed reasonable to define the collections to be sampled in such a way as to coincide as closely as possible with the set of all monograph titles available or likely to be available in the future for interlibrary loan. Judgments about the interlibrary lendability of each subcollection at Berkeley and Los Angeles were therefore made on the basis of recent annual reports of those libraries and interviews with library staff members, and it was decided to draw the samples by sampling from combinations of card catalogs whose collective contents corresponded reasonably well with the subcollections judged lendable.

Specifically, the Berkeley sample was drawn from four card catalogs: (i) the Official Catalog, which is a shelf list of all titles in Berkeley's central collection (Doe Library) and twenty Berkeley branch libraries; (ii) the shelf list for the Rowell Collection, which covers other materials cataloged prior to the University's adoption of the Library of Congress system; (iii) the shelf list for the Law Library; and (iv) the Temporary Cataloging Pool catalog, which provides temporary access to newly acquired documents that have not yet been fully cataloged. Thus the operative meaning of the term 'Berkeley collection' in this report is the set of all monographs for which there is an entry in any of these four catalogs. The 'Berkeley collection' so defined is thought to correspond moderately closely with the set of all potentially lendable monographs at Berkeley, though there are important exceptions: the General Reference collection, for example, is included in the Official Catalog but does not circulate. Among the Berkeley holdings intentionally excluded from the Berkeley collection were the Bancroft Library and Morrison Library collections which do not circulate, and the East Asiatic Library which does not normally circulate and most of whose catalog cards are in Asian languages. The circulating Moffit Undergraduate Library collection, though separately cataloged, consists almost entirely (96%) of titles included in other Berkeley libraries, and so is included in the 'Berkeley collection' for all practical intents and purposes. By volume count, the 'Berkeley collection' contains some 89% of Berkeley's total holdings before the exclusion of nonmonographic materials.

The 'Los Angeles collection' was defined to consist of all monographs for which there is an entry in one of the following catalogs: (i) the Technical Services Department Shelf List; (ii) the Physical Science Libraries shelf list; (iii) the Law Library shelf list; and (iv) the Biomedical Library shelf list. Collectively these four catalogs cover some twenty collections including, in the University Research Library, the following collections: Stack, Reference, Public Affairs Service, Special, Theater Arts, and Technical Services; the College Library and the Education & Psychology collection, in the Powell Library Building; the following branch libraries; Architecture, Art, Management, Map, and Music; and the following physical science library collections: Engineering & Mathematical Sciences, Physics, Geology & Geography, and Chemistry. Not included were the Clark Library, the English Reading Room, and the University Elementary School collections, none of which circulates; the Oriental collection; and the so-called "Brieflisted Volumes" as well as any other uncataloged items. Here again the correspondence of the collection so defined is thought to be in fair, though not perfect, correspondence with the set of lendable monographs on the Los Angeles campus

At the seven 'outlying' campuses there were fewer subcollections to choose from and hence fewer problems about which to include in the present study. Briefly, the 'Davis collection' was defined to be the set of all monographs represented in the main author-title catalog, the Law Library catalog, and the government documents catalog on the Davis campus. The 'Santa Cruz collection' was taken to consist of all monographs represented in the 1971 machine-produced author-title catalog, its 1972 and 1973 updates, and the in-process file on that campus. The 'San Francisco collection' was taken to be all monographs in that campus's author-title catalog. The 'Santa Barbara collection' was taken to be all monographs represented in the author-title catalog, the catalog of art exhibition catalogs, and the government documents catalog. The 'San Diego collection' consisted of all monographs represented in the author-title catalog, the government documents catalog, and the in-process file. The 'Riverside collection' consisted of all monographs represented in the author-title catalog, the catalog of the Bio-Agricultural Library, and the government documents catalog. The 'Irvine collection' was defined to include the monographs represented in the author-title catalog, the catalog of the Medical Sciences Collection, the government documents catalog, and the in-process file. For purposes of comparing the Los Angeles collection against the Berkeley collection only, the Berkeley collection was redefined to consist of all monographs covered by the main author-title and government documents catalogs. These choices were to some extent arbitrary, but some such decisions had to be made for the sake of definiteness and to indicate clearly the extent of the materials searched on each campus.

The term 'monograph' was defined to include individually cataloged issues of monographic serials, but to exclude monographic serials catalogued only as a series, serial pamphlets, sheet music ephemera, and all nonprint materials such as phonograph records, paintings, and transparencies. Monographs in microcopy form were excluded from the Berkeley and Los Angeles collections but included in the collections of the smaller campuses.

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IV. COLLECTION SIZES

With the collections of interest defined clearly, the next step was to estimate the number of monograph titles in each. The size of the Berkeley collection was estimated to be 1,452,000 monograph titles, and the size of the Los Angeles collection was estimated as 1,247,000 monograph titles. These estimates may be compared with the independent estimates of 1,772,000 titles for Berkeley and 1,305,000 titles for Los Angeles derived for the comparable collections from data given in Reference (6), a report prepared in 1973 under the direction of LeRoy Ortopan of the Berkeley cataloging department which will hereinafter be referred to as the 'Ortopan report'. A difference of about 7 or 8 percent between the two sets of figures was to be expected because the estimates in the Ortopan report include serials as well as monographs while ours do not, and because the Ortopan estimates were based on an assumption of one title per catalog card while ours included an adjustment for continuation cards. When these factors are taken into account our estimates are in reasonably good agreement with the Ortopan estimates for the Los Angeles campus but are somewhat lower than the Ortopan figures for Berkeley. We are unable to explain the discrepancy.

Because of the apparent conflict with the Ortopan findings it may be of interest to include a brief description of the methodology by which our estimate of the Berkeley collection size was obtained. As already explained, the Berkeley collection was specified in terms of four card catalogs. Since these catalogs were shelf lists, none contained more than one entry per title. Moreover, the four happened to be mutually exclusive in the sense that no monograph represented in one was represented in any of the other three. These circumstances made it feasible to estimate the Berkeley collection size from the size of the card catalogs. Thanks to the fact that it had recently been photocopied, the exact number of cards (1,217,793) in the Official Catalog was known. The total length of the cards in the remaining three catalogs was measured in centimeters. A random sample of 216 two-centimeter blocks of cards was drawn from the Official, Rowell and Law catalogs collectively and the number of monograph titles in each block counted directly. From this sample it was calculated that there were an average of .936 monograph titles per catalog card and 35.2 monograph titles per centimeter of catalog cards in these three catalogs. Separate estimates of these factors were made for the Temporary Cataloging Pool catalog, in which the use of brief listings and thin-paper cards made it seem likely that both factors would be substantially different. From these data in size of the subcollection represented by the Official Catalog was calculated to be about 1,130,000 monograph titles, by the Rowell Catalog at 174,000 monograph titles, by the Law School Catalog at 64,000 monograph titles, and by the Temporary Cataloging Pool at 84,000 monograph titles. The standard errors in these figures introduced by the sampling technique used to get the conversion factors were 0.38%, 0.87%, and 3.07% respectively. The sum of the four figures is 1,452,000 monograph titles.

The sizes of the smaller campus collections were not independently estimated but were instead computed from data given in the Ortopan

report. The computation included an adjustment of the Ortopan figures for continuation cards and for the exclusion of serials from the collections of interest. The resulting numbers of monograph titles estimated to be in each collection were as follows:

Davis	568,000 titles
Santa Cruz	265,000
San Francisco	87,100
Santa Barbara	588,000
San Diego	647,000
Riverside	403,000
Irvine	425,000

No error estimates are available for these figures.

V. SAMPLING PROCEDURES

The sizes of the random samples to be drawn from the Berkeley and Los Angeles collections were settled upon by making a judgment about the width of the confidence intervals that could be tolerated for the final overlap estimates. It was arbitrarily decided that for this exploratory study it would be sufficient if the .95 confidence intervals typically extended no further than two or three percent in either direction from the estimated percentage overlap figure. If, for example, 20% of the Berkeley collection turned out to be duplicated at Davis, the confidence interval was to be deemed narrow enough if it extended from 17% to 23%. These are fairly wide confidence intervals, as statistical studies go, but they were felt to be narrow enough to give at least a rough idea of the overlap, which is all that was to be attempted in this preliminary study. Moreover, to make them much narrower would have required a disproportionate increase in the sample sizes: the rule of thumb is that to cut the width of a confidence interval in half one must quadruple the sample size. To obtain substantially narrower confidence intervals would therefore have been beyond the resources made available to us for the study.

A word may be in order here about confidence intervals in general, since the correct interpretation of all the findings to be given in the sequel requires a clear understanding of what a confidence interval is. A .95 confidence interval for an estimate is a pair of numbers defining an interval around the estimate such that, roughly speaking, the true figure of interest has a 95% chance of lying in the interval. (A more exact definition is that for any point lying outside the interval, if that point had been the true figure of interest the chances would have been less than five in one hundred of obtaining an estimate as far away from the point as the actual estimate lay.) Thus a .95 confidence interval for an overlap estimate that stretches from 17% to 23% indicates that the true overlap very likely lay between 17% and 23%. When the confidence intervals are wide they take on more significance than the estimate itself, since they indicate in effect a range within which the true quantity of interest in all likelihood lies.

It is a common misconception about statistical methodology that if one is sampling from a very large population, a very large sample should be necessary. This idea is mistaken, because after a certain point the population size has little effect on the size of the sample needed. Sample sizes are therefore to be decided upon with reference to the statistical uncertainty in the final estimate that is tolerable as indicated e.g. by the confidence interval, and not on the basis of population size.

With the aid of a statistical chart,[7] it was determined that a sample size of around one thousand titles would yield confidence intervals of the desired width. (The actual sample sizes drawn were 1024 titles from Berkeley and 1003 from Los Angeles.) The proportion of the sample to be drawn from each subcollection was determined in accordance with the estimated size of the subcollection, e.g. at Berkeley the number of titles drawn from the Official Catalog was that proportion of 1024 which

corresponds to the proportion of the Berkeley collection comprised in the Official Catalog. Within each subcollection the selection of titles was random. This procedure is known as 'stratified sampling' and is slightly superior in some respects to sampling randomly from the pooled catalogs without distinguishing among them.

The actual sampling mechanism involved selecting two hundred and sixty catalog drawers on each campus with the aid of a random number table. Within each drawer a random number of centimeters was measured in, the number again being determined from a random number table, and the first complete monograph entry following this point was taken as a sample title. Three more titles from each drawer were obtained in a similar way by measuring in additional one-centimeter distances, returning to the front of the drawer if the cards ran out. The cards so obtained were then xeroxed to make up a record of the sample. It was necessary later to discard a few titles from each sample which turned out not to be monograph titles in the preestablished sense.

VI. SEARCH PROCEDURE

The next step in the data-gathering process was the searching of the catalogs at the smaller campuses for each title in the sample. The Berkeley sample was searched for in the Davis, Santa Cruz, and San Francisco collections, and the Los Angeles sample was searched for at Santa Barbara, San Diego, Riverside, Irvine, and Berkeley.

At Davis, the first of the smaller campuses to be visited, the entire Berkeley sample was searched under all possible entries, but this procedure proved costly and produced only an insignificant number of titles that would not have been found by looking up main entries only. Thereafter all but a few selected sample titles were looked up by main entry only.

If a document could be found in the smaller collection which was an exact bibliographic duplication of a document in the Berkeley or Los Angeles sample, it was recorded that the smaller collection contained an exact match of the sample item. Documents which were exact reprints of sample items or differed from them only in place of printing were also counted as exact matches. Documents which were textually similar to sample items but which differed from them in respect to edition, publisher, publication date, editor, compiler, translator, etc., were recorded as approximate matches of the sample item. The same treatment was accorded to microcopy editions and partial duplication of multi-volume sets. This criterion for approximate match, though somewhat arbitrary, is at least quite definite. The motivating idea behind the criterion is that a campus collection should be recorded as containing an approximate match for a sample title provided it contained a document that stood a reasonably good chance of filling a user's need, even though the user might have requested the item in the precise form in which it existed in the sample. A translation of a work into another language was not counted as even an approximate match.

VII. FINDINGS CONCERNING EXTENT OF DUPLICATION

Tables IA-IC present the results of the investigation with respect to the extent of overlap between the monograph collections of the various campuses. (In these and all tables to follow, an 'A' in the table number indicates comparisons among northern campuses, a 'B' comparisons among southern campuses, and a 'C' a comparison between the Berkeley and Los Angeles campuses.) In column (1) of Table IA, for instance, we see that 25.6% of the documents in the Berkeley sample had approximate duplicates in the Davis collection, resulting in an estimate of 25.6% for the proportion of the entire Berkeley collection that is approximately duplicated at Davis. The confidence intervals of 23.0% - 28.4% that accompany this estimate indicate that due to the statistical uncertainty introduced by taking a sample of only about a thousand monographs we can be reasonably sure only that the true percentage of the Berkeley collection approximately duplicated at Davis falls within that range. These approximate match figures are to be understood as including exact matches too. When attention is restricted to exact matches only, the extent of the duplication shrinks, and is indicated by the accompanying italicized figures found below the approximate match figures. We see that about 19.4%, or between 17.0% and 22.1%, of the Berkeley collection is exactly duplicated at Davis.

The bottom rows of Tables IA and IB tell the extent of the hub collection duplicated at one or more outlying campuses. For example, Table IA states that for about 30.9% of the monographs in the Berkeley collection an approximate duplicate can be found on at least one other northern campus.

Column (2) of Tables IA-IC translates the percentages in column (1) into absolute numbers of titles in the overlap. There are, for example, about 372,000 monographs held in common between the Berkeley and Davis campuses, when the criterion of duplication is the approximate match. It is the computation of the figures in column (2) for which the estimates of the Berkeley and Los Angeles collection sizes were required. The confidence intervals that accompany the estimates in column (2) were computed in such a way as to take into account only the statistical uncertainty that is due to the sample size of about one thousand; they do not reflect the uncertainty in the estimates of the Berkeley and Los Angeles collection sizes and so are slightly narrower than they should be.

In column (3) the figures of columns (1) and (2) are presented in still another way as estimates of the proportions of the outlying campus collections that are duplicated at a hub campus. Because error estimates are not available for the sizes of the collections at the smaller campuses, no confidence intervals were computed for the estimates in column (3). The figures in column (3) are the least reliable of any on the chart and should be regarded as rough approximations only.

TABLE I A: ESTIMATES OF MONOGRAPH DUPLICATION
BETWEEN UC BERKELEY AND OTHER NORTHERN UC CAMPUSES
(Estimate of Berkeley collection size: 1,452,000 titles)

Other northern campus (with estimated collection size)	(1) Estimated percentage of Berkeley titles duplicated at other campus (with .95 confidence intervals)	(2) Estimated number of Berkeley titles duplicated at other campus (with .95 confidence intervals)	(3) Estimated percentage of other campus titles duplicated at Berkeley
Davis	25.6% (23.0% - 28.4%)	372,000 (334,000 - 412,000)	65.5%
(568,000 titles)	*19.4%* (17.0% - 22.1%)*	*282,000 (247,000 - 321,000)*	*49.6%*
Santa Cruz	13.1 (11.1 - 15.4)	195,000 (161,000 - 224,000)	73.6
(265,000 titles)	*10.1 (8.4 - 12.2)*	*147,000 (122,000 - 177,000)*	*55.5*
San Francisco	4.8 (3.7 - 6.3)	69,700 (53,700 - 91,500)	80.0
(87,100 titles)	*4.0 (3.0 - 5.3)*	*58,100 (43,600 - 77,000)*	*66.7*
Combined northern campuses other than Berkeley	30.9 (28.2 - 33.9)	449,000 (409,000 - 492,000)	
	25.0 (22.3 - 27.9)	*363,000 (324,000 - 405,000)*	

* Italicized figures pertain to exact matches only.

TABLE I B: ESTIMATES OF MONOGRAPH DUPLICATION

BETWEEN UCLA AND OTHER SOUTHERN CAMPUSES

(Estimate of UCLA collection size: 1,247,000 titles)

Other southern campus (with estimated collection size)	(1) Estimated percentage of UCLA titles duplicated at other campus (with .95 confidence intervals)	(2) Estimated number of UCLA titles duplicated at other campus (with .95 confidence intervals)	(3) Estimated percentage of other campus titles duplicated at UCLA
Santa Barbara	36.2% (33.2% - 39.3%)	451,000 (413,000 - 489,000)	76.7%
(588,000 titles)	*30.6%* (27.8% - 33.7%)*	*382,000 (347,000 - 421,000)*	*65.0%*
San Diego	29.4 (26.7 - 32.4)	367,000 (334,000 - 404,000)	56.7
(642,000 titles)	*25.0 (22.3 - 27.9)*	*312,000 (278,000 - 348,000)*	*48.2*
Riverside	26.0 (23.3 - 28.9)	324,000 (290,000 - 360,000)	80.4
(403,000 titles)	*21.1 (18.6 - 23.8)*	*263,000 (232,000 - 297,000)*	*65.3*
Irvine	25.8 (23.1 - 28.7)	322,000 (289,000 - 358,000)	75.8
(425,000 titles)	*19.6 (17.1 - 22.3)*	*244,000 (213,000 - 278,000)*	*57.4*
Combined southern campuses other than UCLA	49.8 (46.7 - 52.9)	621,000 (582,000 - 659,000)	
	44.9 (41.9 - 48.0)	*560,000 (522,000 - 598,000)*	

* Italicized figures pertain to exact matches only.

TABLE I C: ESTIMATE OF MONOGRAPH DUPLICATION
BETWEEN UCLA AND UC BERKELEY
(Estimate of UCLA collection size: 1,247,000 titles)

Estimated Berkeley collection size	(1) Estimated percentage of UCLA titles duplicated at Berkeley (with .95 confidence intervals)	(2) Estimated number of UCLA titles duplicated at Berkeley (with .95 confidence intervals)	(3) Estimated percentage of Berkeley titles duplicated at UCLA
1,452,000 titles	58.4% (55.3% - 61.4%)	728,000 (690,000 - 766,000)	50.1 %
	52.9% (49.8% - 55.0%)*	*660,000 (622,000 - 686,000)*	*45.5%*

*Italicized figures pertain to exact matches only.

VIII. CIRCULATION HISTORIES

The purpose of the second phase of the investigation was to obtain some indication of the amount of usage which the duplicated materials typically receive. For this purpose circulation history as recorded on the charge slip in each book was taken as an indicator of usage. Obviously circulation history does not fully describe or measure a book's true usage, which includes library or 'in-house' uses as well as 'extra-house' uses. Nevertheless, recent studies by Pinzelik and Tolliver,[8] McGrath,[9] Fussler and Simon,[10] Morse,[11] and a report by the State Department of Finance[12] have shown that those books which tend to be used the most in-house are also those books which tend to circulate most frequently. Thus circulation records do provide some definite and measurable basis for making judgments about usage, even though total usage may far exceed circulated usage alone.

To find out the circulation histories of interest each monograph title that was found in the first phase of the investigation to be shared by two campuses was located in the stacks of both campuses in question and the total number of charges indicated on the charge slips was recorded by year. Monographs which could not be located in the stacks were recalled. If there was found to be more than one copy of a monograph of interest on a campus, the number of charges was averaged for all copies up to a limit of three copies. In cases where there were more than three copies that were approximate matches of a sample title, the three chosen for the purpose of recording the circulation data were those judged to be the 'closest' approximations to the title in the sample. A special note was made of books in which the circulation record appeared to be incomplete-- e.g. books in which old circulation slips had been torn out.

IX. FINDINGS CONCERNING USAGE OF DUPLICATED MONOGRAPHS

The term 'usage' will be used from now on in the sense of 'circulated usage', i.e. the number of times a book has circulated. We will present first the findings concerning usage on the Berkeley and Los Angeles campuses of monographs duplicated elsewhere. Tables IIA and IIB give estimates of the breakdown of the duplicated monographs according to circulation status and availability of circulation history on the Berkeley and Los Angeles campuses. We see from column (1) of Table IIA, for example, that of all the monographs in the Berkeley sample that had exact or approximate duplicates at Davis, 81.9% were in one of Berkeley's circulating collections and had circulation records that were intact and accessible to the investigators. This is the proportion of the duplicated sample books on which the Berkeley usage figures to follow are based. The accompanying confidence interval shows the probable range of the percentage of such books in the entire Berkeley collection. Column (2) shows the proportion of the duplicated monographs which circulate but for which the circulation history could not be determined, either because of lost charge slips or because the book in question was not in the stacks and attempts to recall it were unsuccessful. Column (3) indicates the proportion of the duplicated monographs which do not circulate. One sees e.g. that of all monographs in the Berkeley collection that have exact or approximate matches at Davis, between 2.4% and 7.7% do not circulate at Berkeley.

Confining attention now to circulating monographs at Berkeley and Los Angeles that are duplicated elsewhere and have known usage histories (i.e. confining attention to the monographs represented in column (1) of Tables IIA and IIB), we may ask how many times such books were charged out at Berkeley or Los Angeles during the last five years. This question is answered in Tables IIIA and IIIB. The first row of Table IIIA shows, for example, that 36.9% of such books did not circulate at all from 1969 to 1973, 26.1% were charged out only once or twice, 26.1% were charged out from three to ten times, and 10.8% were charged out more than ten times. (The number of books charged out more than twenty times, though not shown separately in the tables, was in all cases very small.) The .95 confidence intervals which accompany these figures indicate the probable ranges of the corresponding percentages in the relevant portions of the entire Berkeley collection.

In interpreting the usage figure in Tables IIIA and IIIB the reader should be aware of a methodological problem which stems from the fact that there is generally no way to tell just by looking at a book exactly when the library acquired it. Ideally these tables would have been compiled so as to show the five-year circulation count only for monographs which had been on the shelves for the entire five year period, but it was not always possible to tell which these were. The makeshift procedure which was followed was to exclude from the analysis all monographs with imprint dates of 1969 or later; these were discarded from the sample on the grounds that they were almost certain not to have been acquired until after the five-year period had commenced. This removed a large part of the problem but not all of it; presumably there were some monographs

in the samples whose dates of printing antedated 1969 but which were not actually acquired by the Berkeley or Los Angeles libraries until after 1969. It is evident that the latter are in a minority, though, since at Berkeley some 89.2% of the monographs remaining in the sample after the exclusion of the post-1968 books were charged out at least once in 1969, proving that at least these must already have been on the shelves at that time; the corresponding figure for Los Angeles is 66.4%. We conclude that the usage frequencies shown in Tables IIIA and IIIB understate the true five-year circulation rates somewhat, but probably only slightly.

In Tables IVA and IVB the usage rates at Berkeley and Los Angeles of all circulatable, known-usage monographs duplicated elsewhere (again the populations of column (1) in Tables IIA and IIB) are analyzed in a different way. Instead of a straight circulation frequency count over a fixed time interval, these tables classify the usage pattern over the entire active life of the book according to a special algorithm designed by the office of the State Auditor of California. This algorithm is presented in the Appendix in the form of a flowchart; an explanation of it may be found in Reference (12). A convenient feature of the algorithm is that it can be applied to any book whose complete circulation history is available even though the date on which the book was acquired may not be known. Hence no special methodological problems connected with acquisition data arise in connection with these tables, though of course the reader must familiarize himself with the algorithm before the classifications 'High usage' and 'Infrequent usage' can be interpreted meaningfully.

Finally we turn to the usage data collected at the smaller campuses for monographs held in common between these campuses and either Berkeley or Los Angeles. Tables VA and VB, which are analogous to IIA and IIB, show in column (1) the proportions of the duplicated monographs which circulate at the smaller campus in question and whose complete usage history there could be determined. For these books Tables VIA and VIB, which are comparable to IIIA and IIIB, give frequency counts of local circulations over the last five years; again books imprint dated 1969 or later were excluded from the count. Frequency counts for the San Diego collection are omitted from Table VIB due to the fact that on that campus circulation records were not kept for many of the local collections until well after the five-year period had started. San Francisco circulation data are also omitted. Tables VIIA and VIIB, which complement IVA and IVB, re-analyze the usage rates in accordance with the State Auditor's algorithm. The usage figures for San Diego in Table VIIB must be interpreted with special care in view of the very brief recorded circulation histories on which the figures are based.

TABLE II A: CIRCULATION STATUS AT BERKELEY
OF BERKELEY TITLES DUPLICATED
AT OTHER NORTHERN CAMPUSES

Other northern campus (with estimated number of titles duplicated at Berkeley)	(1) Circulatable with known usage (with .95 confidence intervals)	(2) Circulatable with unknown usage (with .95 confidence intervals)	(3) Non-circulatable (with .95 confidence intervals)
Davis (372,000)	81.9% (77.6% - 86.3%)	13.5% (9.7% - 18.4%)	4.6% (2.4% - 7.7%)
Santa Cruz (195,000)	81.9 (73.8 - 88.2)	13.8 (8.4 - 21.1)	4.3 (1.5 - 9.4)
San Francisco (69,700)	83.7 (69.0 - 92.7)	8.1 (2.3 - 20.1)	8.2 (2.4 - 20.2)
One or more other northern campuses (449,000)	80.7 (75.4 - 84.8)	14.2 (10.4 - 18.9)	5.1 (2.9 - 8.2)

TABLE II B: CIRCULATION STATUS AT UCLA
OF UCLA TITLES DUPLICATED
AT OTHER SOUTHERN CAMPUSES

Other southern campus (with estimated number of titles duplicated at UCLA)	(1) Circulatable with known usage (with .95 confidence intervals)	(2) Circulatable with unknown usage (with .95 confidence intervals)	(3) Non-circulatable (with .95 confidence intervals)
Santa Barbara (451,000)	69.4% (63.4%-74.9%)	18.8% (14.4%-24.1%)	11.8% (8.3%-16.2%)
San Diego (367,000)	66.8 (61.5 - 71.9)	22.6 (18.2 - 27.5)	10.6 (7.5 - 14.4)
Riverside (324,000)	67.7 (61.4 - 73.4)	19.4 (14.7 - 25.1)	12.9 (9.1 - 17.7)
Irvine (322,000)	67.6 (61.3 - 73.3)	21.2 (16.3 - 27.0)	11.2 (7.6 - 15.9)
One or more other southern campuses (621,000)	70.5 (66.2 - 74.7)	18.3 (14.9 - 22.1)	11.2 (8.4 - 14.4)

TABLE IIIA: USAGE AT BERKELEY OF CIRCULATABLE BERKELEY TITLES DUPLICATED AT OTHER NORTHERN CAMPUSES (FREQUENCY DISTRIBUTION)

Other northern campus (with estimated number of pre-1969 titles duplicated and circulatable with known usage at Berkeley)	Number of recorded uses during 1969 - 1973			
	0	1 - 2	3 - 10	11 or more
Davis (250,000)	36.9% (29.7%-44.9%)	26.1% (19.6%-33.6%)	26.1% (19.6%-33.6%)	10.8% (6.6%-16.5%)
Santa Cruz (130,000)	22.8 (14.5 - 32.9)	21.7 (13.5 - 31.6)	37.0 (27.2 - 47.8)	18.5 (11.0 - 28.2)
San Francisco (52,500)	40.5 (25.2 - 57.0)	18.9 (8.4 - 34.7)	24.3 (12.1 - 40.6)	16.2 (6.6 - 31.6)
One or more other northern campuses (279,000)	34.0 (27.4 - 41.3)	27.9 (21.6 - 34.9)	27.4 (21.1 - 34.4)	10.7 (6.9 - 15.7)

TABLE III B: USAGE AT UCLA OF CIRCULATABLE UCLA TITLES DUPLICATED AT OTHER SOUTHERN CAMPUSES (FREQUENCY DISTRIBUTION)

Other southern campus (with estimated number of pre-1969 titles duplicated and circulatable with known usage at UCLA)	Number of recorded uses during 1969 - 1973			
	0	1 - 2	3 - 10	11 or more
Santa Barbara (205,000)	47.3% (39.3%-55.3%)	21.2% (15.1%-28.5%)	26.1% (19.4%-33.9%)	5.4% (2.5%-10.2%)
San Diego (150,000)	43.0 (33.9 - 52.6)	23.1 (15.7 - 31.9)	28.1 (20.1 - 37.3)	5.8 (2.5 - 11.7)
Riverside (143,000)	46.1 (36.7 - 55.6)	18.3 (11.6 - 26.6)	28.7 (20.5 - 38.0)	7.0 (3.2 - 13.3)
Irvine (127,000)	40.2 (30.8 - 50.3)	23.5 (15.6 - 32.8)	31.4 (22.6 - 41.2)	5.0 (1.8 - 11.2)
One or more other southern campuses (297,000)	51.0 (44.5 - 57.5)	22.6 (17.3 - 28.7)	22.2 (17.0 - 28.3)	4.2 (2.0 - 7.4)

TABLE IV A: USAGE AT BERKELEY OF CIRCULATABLE BERKELEY TITLES DUPLICATED AT OTHER NORTHERN CAMPUSES (STATE AUDITOR'S ALGORITHM)

Other northern campus (with estimated number of titles duplicated and circulatable with known usage at Berkeley)	(1) High usage (with .95 confidence intervals)	(2) Infrequent usage (with .95 confidence intervals)	(3) No usage (with .95 confidence intervals)
Davis (305,000)	77.4% (70.9%-83.0%)	16.5% (11.8%-22.3%)	6.1% (3.3%-10.1%)
Santa Cruz (160,000)	86.7 (78.8 - 92.4)	11.5 (6.2 - 19.1)	1.8 (0.1 - 6.5)
San Francisco (58,300)	78.0 (62.2 - 89.2)	17.1 (7.4 - 32.4)	4.9 (0.9 - 16.5)
One or more other northern campuses (362,000)	77.3 (71.4 - 82.5)	16.8 (12.2 - 22.2)	5.9 (3.3 - 9.5)

TABLE IV B: USAGE AT UCLA OF CIRCULATABLE
UCLA TITLES DUPLICATED AT OTHER
SOUTHERN CAMPUSES
(STATE AUDITOR'S ALGORITHM)

Other southern campus (with estimated number of titles duplicated and circulatable with known usage at UCLA)	(1) High usage (with .95 confidence intervals)	(2) Infrequent usage (with .95 confidence intervals)	(3) No usage (with .95 confidence intervals)
Santa Barbara (313,000)	65.1% (57.9%-71.6%)	8.7% (5.2%-13.3%)	26.2% (20.2%-33.0%)
San Diego (245,000)	67.2 (60.7 - 73.0)	11.8 (8.0 - 16.5)	21.0 (16.0 - 26.8)
Riverside (219,000)	69.7 (62.1 - 76.4)	9.0 (5.3 - 14.3)	21.3 (15.4 - 28.2)
Irvine (218,000)	70.3 (62.7 - 77.0)	12.0 (7.7 - 16.1)	17.7 (12.4 - 24.3)
One or more other southern campuses (438,000)	60.2 (54.7 - 65.4)	12.7 (9.4 - 16.8)	27.1 (22.1 - 32.3)

TABLE V A: CIRCULATION STATUS
AT OTHER NORTHERN CAMPUSES OF TITLES DUPLICATED
AT BERKELEY

Other northern campus (with estimated number of titles duplicated at Berkeley)	(1) Circulatable with known usage (with .95 confidence intervals)	(2) Circulatable with unknown usage (with .95 confidence intervals)	(3) In-process (with .95 confidence intervals)	(4) Non-circulatable (with .95 confidence intervals)
Davis (372,000)	86.9% (82.2%-90.7%)	9.6% (6.3%-13.9%)	-	3.5% (1.7%-6.4%)
Santa Cruz (195,000)	88.4 (81.4 - 93.3)	7.3 (3.5 - 13.5)	1.4 (0 - 5.3)	2.9 (0.8 - 7.5)
San Francisco (69,700)	77.5 (66.7 - 92.5)	16.4 (7.5 - 30.2)	-	6.1 (1.5 - 17.5)

TABLE V B: CIRCULATION STATUS
AT OTHER SOUTHERN CAMPUSES OF TITLES DUPLICATED
AT UCLA

Other southern campus (with estimated number of titles duplicated at UCLA)	(1) Circulatable with known usage (with .95 confidence intervals)	(2) Circulatable with unknown usage (with .95 confidence intervals)	(3) In-process (with .95 confidence intervals)	(4) Non-circulatable (with .95 confidence intervals)
Santa Barbara (451,000)	79.6% (74.9%-83.8%)	6.1% (4.0%-9.1%)	1.1% (0.4%-2.7%)	13.2% (9.9%-17.3%)
San Diego (367,000)	33.9 (28.4 - 39.9)	52.7 (46.8 - 58.6)	9.6 (6.4 - 13.6)	3.8 (2.0 - 6.6)
Riverside (324,000)	80.6 (74.9 - 85.4)	9.9 (6.6 - 14.3)	2.3 (0.9 - 4.8)	7.2 (4.3 - 11.0)
Irvine (322,000)	80.3 (74.5 - 85.1)	11.9 (8.2 - 16.5)	3.9 (1.8 - 6.8)	3.9 (1.8 - 6.8)

TABLE VIA: USAGE AT OTHER NORTHERN CAMPUSES
OF CIRCULATABLE TITLES DUPLICATED AT BERKELEY
(FREQUENCY DISTRIBUTION)

Other northern campus (with estimated number of pre-1969 titles duplicated and circulatable locally with known usage)	Number of recorded uses during 1969 - 1973			
	0	1 - 2	3 - 10	11 or more
Davis (235,000)	55.4% (47.2%-63.3%)	23.5% (17.0%-31.1%)	21.1% (14.9%-28.4%)	0% (0% - 2.5%)
Santa Cruz (139,000)	39.8 (30.1 - 50.1)	21.4 (13.7 - 30.8)	34.7 (25.5 - 44.9)	5.1 (1.8 - 11.6)

TABLE VI B: USAGE AT OTHER SOUTHERN CAMPUSES
OF CIRCULATABLE TITLES DUPLICATED AT UCLA
(FREQUENCY DISTRIBUTION)

Other southern campus (with estimated number of pre-1969 titles duplicated and circulatable locally with known usage)	Number of recorded uses during 1969 - 1973			
	0	1 - 2	3 - 10	11 or more
Santa Barbara (274,000)	41.4% (34.8%-48.4%)	26.4% (20.6%-33.0%)	30.5% (24.4%-37.3%)	1.8 (0.5% - 4.5%)
Riverside (230,000)	45.4 (38.0 - 53.0)	20.5 (14.7 - 27.3)	25.4 (19.1 - 32.6)	8.6 (5.0 - 13.5)
Irvine (196,000)	36.7 (29.0 - 45.2)	28.5 (21.3 - 36.7)	31.6 (24.2 - 39.9)	3.2 (1.0 - 7.4)

TABLE VII A: USAGE OF OTHER NORTHERN CAMPUSES
OF CIRCULATABLE TITLES DUPLICATED AT BERKELEY

Other northern campus (with estimated number of titles duplicated and circulatable locally with known usage)	(1) High usage (with .95 confidence intervals)	(2) Infrequent usage (with .95 confidence intervals)	(3) No usage (with .95 confidence intervals)
Davis (323,000)	52.0% (45.4%-58.6%)	16.0% (10.4%-20.6%)	[illegible]
Santa Cruz (172,000)	56.5 (46.9 - 65.6)	9.0 (4.6 - 15.6)	34.5 (26.3 - 43.8)
San Francisco (54,000)	76.3 (60.3 - 88.1)	10.5 (3.3 - 24.2)	13.2 (4.9 - 27.7)

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TABLE VII B: USAGE AT OTHER SOUTHERN CAMPUSES OF CIRCULATABLE TITLES DUPLICATED AT UCLA

Other southern campus (with estimated number of titles duplicated and circulatable locally with known usage)	(1) High usage (with .95 confidence intervals)	(2) Infrequent usage (with .95 confidence intervals)	(3) No usage (with .95 confidence intervals)
Santa Barbara (350,000)	57.4% (51.1%-63.8%)	10.7% (6.1%-17.1%)	31.9% (25.8%-38.3%)
San Diego* (124,000)	83.8 (75.2 - 90.3)	9.1 (4.1 - 16.4)	7.1 (3.1 - 13.9)
Riverside (261,000)	57.1 (49.9 - 63.9)	11.8 (8.0 - 16.8)	31.1 (24.8 - 37.9)
Irvine (259,000)	57.2 (50.0 - 64.0)	9.1 (5.7 - 13.5)	33.7 (27.5 - 40.4)

* For this campus only, usage figures are based on usage records commencing between 1969 and 1973.

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X. FUTURE RESEARCH POSSIBILITIES

During the entire investigation, the data were recorded in such a way as to allow for possible future analyses in case at some future time further analysis should be deemed desirable. The possibilities include enlargement of the samples, a finer analysis of overlap and usage characteristics, and an investigation of such special characteristics of the overlapped documents as age or language.

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REFERENCES

1. Nugent, W.R., "Statistics of Collection Overlap at the Libraries of the Six New England State Universities," Library Resources and Technical Services 12:1 (Winter 1968) 31-36.

2. Parker, R., A Feasibility Study for a Joint Computer Center for Five Washington, D.C. University Libraries. Washington, D.C.: Consortium of Universities of Metropolitan Washington, 1968.

3. Bryan, H., "The New South Wales Area Collecting Project," The Australian Library Journal 19:8 (September 1970) 312-317.

4. Bryan, H., "A Further Assessment of the New South Wales Areas of Collecting Scheme," The Australian Library Journal 21:8 (October 1972) 375-381.

5. Urquhart, J.A. and J.L. Schofield, "Overlap of Acquisitions in the University of London Libraries: a Study and a Methodology," Journal of Librarianship 4:1 (January 1972) 32-47.

6. Titles Classified by the Library of Congress Classification, University of California Libraries. Berkeley: General Library, 1973.

7. Freund, J.E., Modern Elementary Statistics. 3rd ed. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1967, p. 389.

8. Pinzelik, Barbara P., and Tolliver, Don L., Statistical Collection Simplified within the Purdue General Library. Part I. Lafayette, Indiana, 1972.

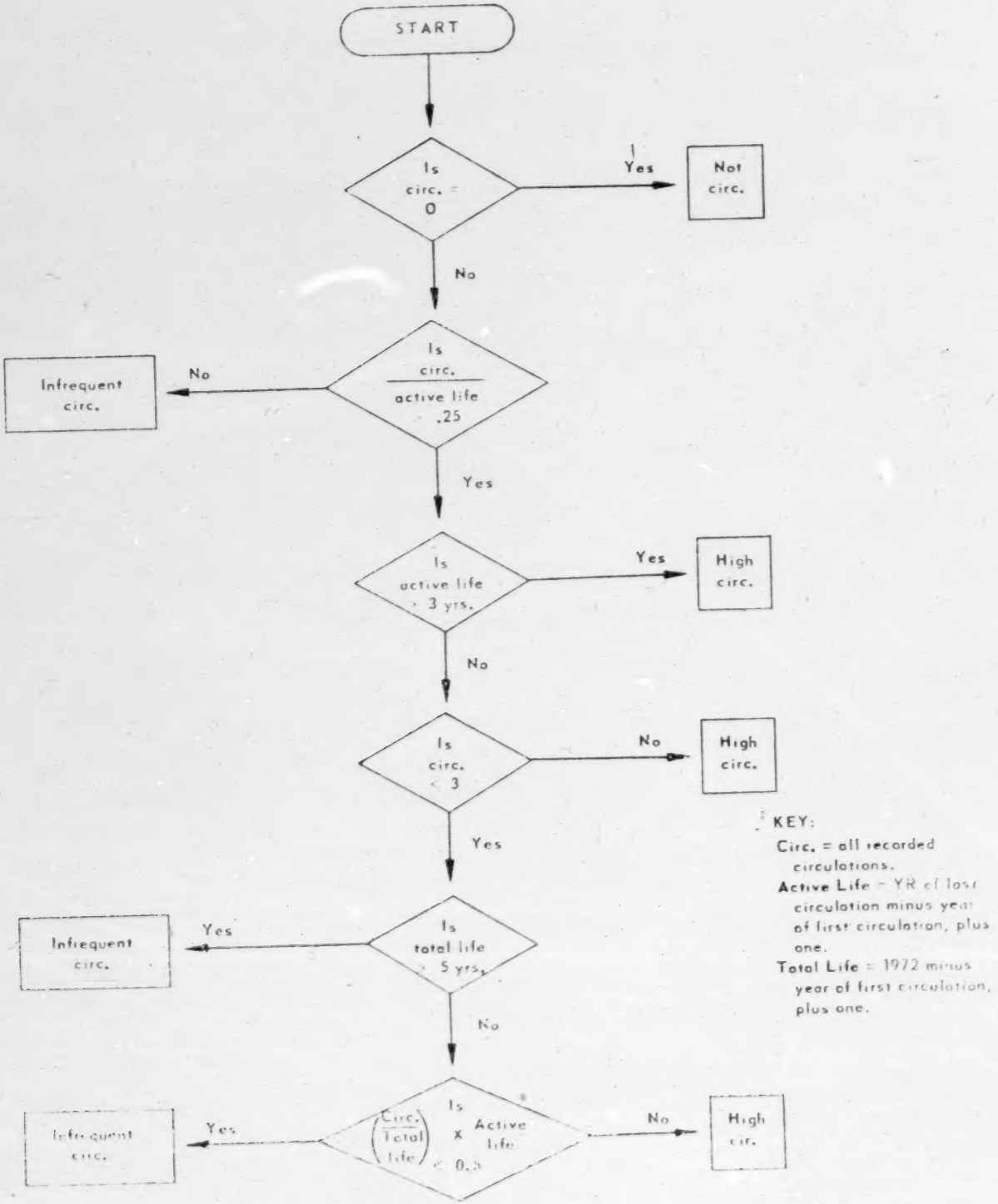
9. McGrath, William E., "Correlating the Subjects of Books Taken out of and Books Used within an Open-Stack Library," College & Research Libraries 32 (1971) 280-285.

10. Fussler, Herman H., and Simon, Julian L., Patterns in the Use of Books in Large Research Libraries. Rev. ed. Chicago: University of Chicago Press, 1969.

11. Morse, Philip M., Library Effectiveness: a Systems Approach. Campridge, Mass.: M.I.T. Press, 1968.

12. Library Cooperation: a Systems Approach to Interinstitutional Resource Utilization. Sacramento: California Department of Finance, Program Review Branch, Audits Division, 1973.

APPENDIX: STATE AUDITOR'S ALGORITHM FOR CLASSIFYING BOOK USAGE



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ILR-73-004 Weeks, Kenneth, Proposal for a University of California/California State University and Colleges Inter-Segmental Machine Readable Library Patron Card (August 1973) 21 pp. (ERIC NO. ED-082 777)

ILR-73-005 LeDonne, Marjorie, "Summary of Court Decisions Relating to the Provision of Library Servicee in Correctional Institutions," Association of Hospital and Institution Libraries Quarterly (Winter/Spring 1973) 9 pp.

ILR-73-006 Thelin, John, and Bonnie F. Shaw (editors), Institute of Library Research Annual Report: July 1972 to June 1973 (September 1973) 30 pp.

ILR-73-007 Dekleva, Borut, Uniform Slavic Transliteration Alphabet (USTA) (October 1973) 82 pp. (ERIC NO. ED-086 164)

ILR-73-008 LeDonne, Marjorie, Findings and Recommendations. Volume I, Survey of Library and Information Problems in Correctional Institutions (January 1974).

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ILR-73-010 LeDonne, Marjorie, David Christiano, and Jane Scantlebury, Current Practices in Correctional Library Services: State Profiles. Volume III, Survey of Library and Information Problems in Correctional Institutions (January 1974)

ILR-73-011 LeDonne, Marjorie, David Christiano, and Joan Stout, Bibliography. Volume IV, Survey of Library and Information Problems in Correctional Institutions (January 1974)

ILR-73-012 Gregor, Dorothy, Feasibility of Cooperative Collecting of Exotic Foreign Language Serial Titles Among Health Sciences Libraries in California (February 1974) 44 pp.

ILR-74-001 Nozik, Barbara, The Use Status of Books Requested from the University of California, Berkeley, Inter-Library Loan (March 1974) 11 pp.

ILR-74-002 Bourne, Charles P., Institute of Library Research Annual Report: July 1973 to June 1974 (1974)

ILR-74-003 Humphrey, Allan J., Survey of Selected Installations Actively Searching the ERIC Magnetic Tape Data Base in Batch Mode. Volume I (June 1973)